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TITLE : HARD FILM

ABSTRACT : PROBLEM TO BE SOLVED: To prepare a hard film superior in wear resistance to an (Al,Ti)(N,C) type film, which has the most excellent wear resistance among the conventional TiN film, TiC film, TiCN film, and (Al,Ti)(N,C) type film, and having wear resistance capable of meeting the demand for high speed cutting.

SOLUTION: This hard film has a composition represented by $(Al_{1-y}X_y)Z$, where X and Z mean one element among Cr, V, and Mg and one element among N, C, B, Cn, BN, and CBN, respectively, and $0 < y \leq 0.3$ is satisfied.

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